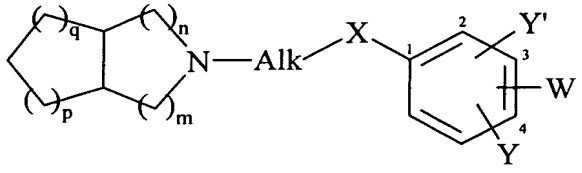
CLAIMS

1- Compounds of formula (I) :



(I)

wherein :

- **m** and **n**, which may be identical or different, each represent an integer of from 0 to 2 inclusive, with the sum of the two integers being from 2 to 3 inclusive,

- **p** and **q**, which may be identical or different, each represent an integer of from 0 to 2 inclusive,

- **Alk** represents an alkylene, alkenylene or alkynylene chain,

- **Y** and **Y'**, which may be identical or different, each represent a hydrogen atom, a halogen atom or an alkyl, alkoxy, alkylthio, alkylsulphinyl, alkylsulphonyl, mercapto, hydroxy, perhaloalkyl, nitro, amino (unsubstituted or substituted by one or two alkyl groups), acyl, aminocarbonyl (optionally substituted on the nitrogen atom by one or two alkyl groups), acylamino (optionally substituted on the nitrogen atom by an alkyl group), alkoxycarbonyl, carboxy, sulpho or cyano group,

- **X** represents an oxygen atom, a sulphur atom or an –N(R)– group wherein R represents a hydrogen atom or an alkyl group,

- **W** represents a group selected from cyano (when X represents an oxygen atom or an -N(R)– group), $-N(R_1)-Z_1-R_2$ and $-Z_2-NR_1R_2$,

  wherein :

- Z_1 represents–C(O)–, –C(S)–, –C(NR_4)–, *–C(O)–N(R_3)–, *–C(S)–N(R_3)–, *–C(NR_4)–N(R_3)–, *–C(O)–O–, *–C(S)–O– or –S(O)$_r$–, in which r = 1 or 2 and * corresponds to the point of attachment to N(R_1),
- Z_2 represents –C(O)–, –C(S)–, –C(NR_4)–, –S(O)$_r$– or a bond,
- R_1, R_2, R_3 and R_4, which may be identical or different, each represent a hydrogen atom, an optionally substituted alkyl group, optionally substituted alkenyl group, optionally substituted alkynyl group, alkoxy group, optionally substituted cycloalkyl group, optionally substituted heterocycloalkyl group, optionally substituted aryl group or optionally substituted heteroaryl group,
- or R_1 and R_2 or R_2 and R_3, together with the atom or atoms carrying them, form an optionally substituted heterocycloalkyl or optionally substituted heteroaryl group,

their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases,

wherein:

- the term "alkyl" denotes a linear or branched hydrocarbon chain containing from 1 to 6 carbon atoms,
- the term "alkenyl" denotes a linear or branched group containing from 3 to 6 carbon atoms and from 1 to 3 double bonds,
- the term "alkynyl" denotes a linear or branched group containing from 3 to 6 carbon atoms and from 1 to 3 triple bonds,
- the term "alkoxy" denotes an alkyl-oxy group in which the linear or branched alkyl chain contains from 1 to 6 carbon atoms,
- the expression "optionally substituted aryloxy" denotes an aryl-oxy group in which the aryl group is optionally substituted,
- the term "acyl" denotes an $R_aC(O)$- group in which R_a represents a hydrogen atom or an alkyl group,
- the term "perhaloalkyl" denotes a linear or branched carbon chain containing from 1 to 3 carbon atoms and from 1 to 7 halogen atoms,
- the term "alkylene" denotes a linear or branched bivalent radical containing from 1 to 6 carbon atoms,

- the term "alkenylene" denotes a linear or branched bivalent radical containing from 2 to 6 carbon atoms and from 1 to 3 double bonds,
- the term "alkynylene" denotes a linear or branched bivalent radical containing from 2 to 6 carbon atoms and from 1 to 3 triple bonds,
- the term "aryl" denotes a phenyl, naphthyl, indanyl, indenyl, dihydronaphthyl or tetrahydronaphthyl group,
- the term "heteroaryl" denotes a monocyclic or bicyclic group in which at least one of the rings is aromatic, the group containing from 5 to 11 ring members and from 1 to 4 hetero atoms selected from nitrogen, oxygen and sulphur,
- the term "cycloalkyl" denotes a hydrocarbon monocycle or bicycle containing from 3 to 11 carbon atoms and optionally unsaturated by 1 or 2 unsaturated bonds,
- the term "heterocycloalkyl" denotes a mono- or bi-cyclic group, saturated or unsaturated by 1 or 2 unsaturated bonds, the group containing from 4 to 11 ring members and having from 1 to 4 hetero atoms selected from nitrogen, oxygen and sulphur,
- the expression "optionally substituted" applied to the terms cycloalkyl, aryl, heteroaryl and heterocycloalkyl denotes either i) that those groups may be substituted by from 1 to 3 identical or different substituents selected from alkyl, alkoxy, alkylthio, alkylsulphinyl, alkylsulphonyl, halogen, hydroxy, mercapto, perhaloalkyl, nitro, amino (unsubstituted or substituted by one or two alkyl groups), acyl, aminocarbonyl (optionally substituted on the nitrogen atom by one or two alkyl groups), acylamino (optionally substituted on the nitrogen atom by an alkyl group), alkoxycarbonyl, carboxy, sulpho and cyano, or ii) that those groups may be substituted by an aryl, heteroaryl, cycloalkyl, heterocycloalkyl or benzyl group; it being understood that the aryl or heteroaryl groups may in addition be substituted by one or two oxo groups on the non-aromatic moiety of the groups containing an aromatic moiety and a non-aromatic moiety and that the cycloalkyl or heterocycloalkyl groups may be substituted likewise by one or two oxo groups,
- the expression "optionally substituted" applied to the term alkyl, alkenyl or alkynyl denotes that those groups may be substituted by one or two identical or different groups selected from alkylthio, alkylsulphinyl, alkylsulphonyl, alkoxy, halogen, hydroxy, mercapto, nitro, amino, acyl, aminocarbonyl, acylamino, alkoxycarbonyl, carboxy,

sulpho, cyano, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted cycloalkyl, optionally substituted heterocycloalkyl and optionally substituted aryloxy.

2- Compounds of formula (I) according to claim 1, wherein q is 1, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

3- Compounds of formula (I) according to claim 1 or 2, wherein n is 1, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

4- Compounds of formula (I) according to any one of claims 1 to 3, wherein m is 1, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

5- Compounds of formula (I) according to any one of claims 1 to 3, wherein m is 2, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

6- Compounds of formula (I) according to any one of claims 1 to 5, wherein p is 1, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

7- Compounds of formula (I) according to any one of claims 1 to 5, wherein p is 2, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

8- Compounds of formula (I) according to any one of claims 1 to 7, wherein X represents an oxygen atom or a sulphur atom, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

9- Compounds of formula (I) according to any one of claims 1 to 7, wherein X represents an –N(R)– group, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

10- Compounds of formula (I) according to any one of claims 1 to 9, wherein Y and Y' each represent a hydrogen atom, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

11- Compounds of formula (I) according to any one of claims 1 to 9, wherein Y represents a hydrogen atom and Y' represents a halogen atom or an alkyl, alkoxy, alkylthio, alkylsulphinyl, alkylsulphonyl, mercapto, hydroxy, perhaloalkyl, nitro, amino (unsubstituted or substituted by one or two alkyl groups), acyl, aminocarbonyl (optionally substituted on the nitrogen atom by one or two alkyl groups), acylamino (optionally substituted on the nitrogen atom by an alkyl group), alkoxycarbonyl, carboxy, sulpho or cyano group, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

12- Compounds of formula (I) according to any one of claims 1 to 11, wherein Alk represents an alkylene chain, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

13- Compounds of formula (I) according to any one of claims 1 to 12, wherein W is located on the phenyl group in the 4-position, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

14- Compounds of formula (I) according to any one of claims 1 to 13, wherein W

represents a cyano group, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

15- Compounds of formula (I) according to any one of claims 1 to 13, wherein W represents an $-N(R_1)-Z_1-R_2$ group, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

16- Compounds of formula (I) according to any one of claims 1 to 13, wherein W represents a $-Z_2-NR_1R_2$ group, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

17- Compounds of formula (I) according to any one of claims 1 to 13 or 16, wherein Z_2 represents a group selected from $-C(O)-$, $-C(S)-$, $-C(NR_4)-$ and $-S(O)_r-$, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

18- Compounds of formula (I) according to any one of claims 1 to 13 or 16, wherein Z_2 represents a bond, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

19- Compounds of formula (I) according to any one of claims 1 to 13 or 15, wherein Z_1 represents a group selected from $-C(O)-$, $-C(S)-$, $*-C(O)-N(R_3)-$, $*-C(S)-N(R_3)-$, *-C(O)-O- and $-S(O)_2-$, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

20- Compounds of formula (I) according to any one of claims 1 to 13 or 15 to 19, wherein R_1, R_2, R_3 and R_4, which may be identical or different, each represent a hydrogen atom or a

group selected from cycloalkyl; alkoxy; optionally substituted phenyl; naphthyl; a heteroaryl group; and an alkyl group optionally substituted

- by an optionally substituted phenyl group,
- or by a cycloalkyl group,
- or by a heterocycloalkyl group,
- or by a heteroaryl group,
- or by one or two alkoxy groups, or
- by a phenyloxy group

their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

21- Compounds of formula (I) according to any one of claims 1 to 13, 15 to 17 or 19, wherein W represents a group selected from $-N(R_1)-C(O)-NR_2R_3$; $-N(R_1)-C(S)-NR_2R_3$; $-C(O)-NR_1R_2$ and $-C(S)-NR_1R_2$; wherein R_1 and R_2 or R_2 and R_3 together with the nitrogen atom or atoms carrying them form a heterocycloalkyl group or a piperidino-piperidinyl group, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

22- Compounds of formula (I) according to any one of claims 1 to 13 or 16 to 18, wherein W represents a $-Z_2-NR_1R_2$ group in which Z_2 represents a bond ;
R_1 and R_2, together with the nitrogen atom carrying them, form a heteroaryl group or R_1 represents a hydrogen atom or an alkyl group and R_2 represents an aryl or heteroaryl group, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

23- Compounds of formula (I) according to any one of claims 1 to 13, 16, 17 or 21, wherein W represents a $-C(O)-NR_1R_2$ group in which R_1 and R_2, together with the nitrogen atom carrying them, form a group selected from piperazinyl optionally substituted by an alkyl or benzyl group; piperidinyl optionally substituted by an alkyl or benzyl group; morpholinyl; azepanyl; thiomorpholinyl; octahydrocyclopentapyrrolyl; dihydroquinolinyl; and tetrahydroquinolinyl, their enantiomers, diastereoisomers, and also addition salts

thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

24- Compounds of formula (I) according to any one of claims 1 to 13, 16, 17 or 20, wherein W represents a -C(O)-NR_1R_2 group in which R_1 and R_2, independently, each represent an alkyl group or a hydrogen atom, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

25- Compounds of formula (I) according to any one of claims 1 to 13, 15, 19 or 20, wherein W represents a –$N(R_1)$–C(O)–R_2 group in which R_1 and R_2, independently, each represent an alkyl group or a hydrogen atom, their enantiomers, diastereoisomers, and also addition salts thereof with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases.

26- Compound of formula (I) according to any one of claims 1 to 14, which is 4-(3-hexahydrocyclopenta[*c*]pyrrol-2(1*H*)-ylpropoxy)benzonitrile, its enantiomers, diastereoisomers, and also addition salts thereof with a pharmaceutically acceptable acid.

27- Compound of formula (I) according to any one of claims 1 to 13, 16, 17, 20 or 24, which is 4-(3-hexahydrocyclopenta[*c*]-pyrrol-2(1*H*)-ylpropoxy)benzamide, its enantiomers, diastereoisomers, and also addition salts thereof with a pharmaceutically acceptable acid.

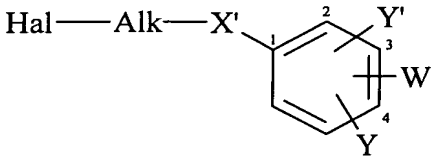
28- Compound of formula (I) according to any one of claims 1 to 13, 16, 17, 20 or 24, which is 4-[3-(hexahydrocyclopenta[*c*]pyrrol-2(1*H*)-yl)propoxy]-*N*-methyl-benzamide, its enantiomers, diastereoisomers, and also addition salts thereof with a pharmaceutically acceptable acid.

29- Compound of formula (I) according to any one of claims 1 to 13, 16, 17, 20 or 24, which is 4-[3-(hexahydrocyclopenta[*c*]pyrrol-2(1*H*)-yl)propoxy]-*N,N*-dimethyl-benzamide, its enantiomers, diastereoisomers, and also addition salts thereof with a pharmaceutically

acceptable acid.

30- Compound of formula (I) according to any one of claims 1 to 13, 15, 19, 20 or 25, which is *N*-[4-(3-hexahydrocyclopenta[*c*]pyrrol-2(1*H*)-yl)propoxy]phenyl]acetamide, its enantiomers, diastereoisomers, and also addition salts thereof with a pharmaceutically acceptable acid.

31- Process for the preparation of the compounds of formula (I) according to claim 1, characterised in that there is used as starting material a compound of formula (II) :

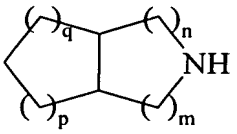


(II)

wherein :

Alk is as defined for formula (I), Hal represents a halogen atom, X' represents an oxygen atom, a sulphur atom or an –N(p)– group, in which (p) represents a hydrogen atom, a conventional protecting group for the nitrogen atom, or an alkyl group, and W, Y and Y' are as defined for formula (I),

which compound of formula (II), after deprotection where appropriate, is condensed in basic medium with a bicycle of formula (III) :



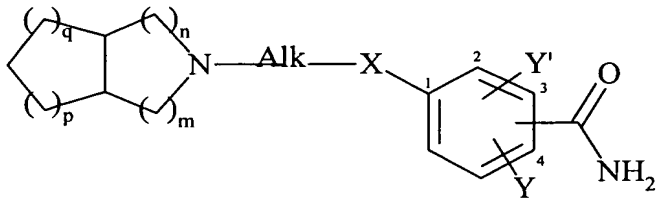
(III)

wherein :

n, m, p and q are as defined for formula (I), to yield a compound of formula (I)

- which compound of formula (I), when W represents a cyano group, is optionally reacted with sodium hydroxide or potassium hydroxide

to yield a compound of formula (I/b) :



(I/b) ,

a particular case of the compounds of formula (I) wherein Alk, n, m, p, q, X, Y and Y' are as defined for formula (I),

which compounds of formula (I),

- may, if necessary, be purified according to a conventional purification technique,
- are separated, where appropriate, into stereoisomers according to a conventional separation technique,
- are converted, if desired, into addition salts with one or more pharmaceutically acceptable acids or one or more pharmaceutically acceptable bases,

it being understood that:

- at any moment considered appropriate during the course of the process described above, the group or groups carbonyl, thiocarbonyl, amino, alkylamino of the starting reagent (II) can be protected and then, after condensation, deprotected, as required by the synthesis,
- the reagents (II) and (III) are prepared according to known procedures described in the literature.

32- Pharmaceutical compositions comprising as active ingredient at least one compound according to any one of claims 1 to 30, alone or in combination with one or more pharmaceutically acceptable, inert, non-toxic excipients or carriers.

33- Pharmaceutical compositions according to claim 32, containing at least one active ingredient according to any one of claims 1 to 30, for use as a medicament in the treatment of cognitive deficiencies associated with cerebral ageing and with neurodegenerative diseases, and also in the treatment of mood disorders, convulsive attacks, attention deficit hyperactivity syndrome, obesity and pain.

34- Pharmaceutical compositions according to claim 32, containing at least one active ingredient according to any one of claims 1 to 30, for use as a medicament in the treatment

of cognitive deficiencies associated with Alzheimer's disease, Parkinson's disease, Pick's disease, Korsakoff's disease, and frontal lobe and sub-cortical dementias of vascular or other origins.

35- Use of a pharmaceutical composition according to claim 32, containing at least one active ingredient according to any one of claims 1 to 30, for the manufacture of medicaments for use in the treatment of cognitive deficiencies associated with cerebral ageing and with neurodegenerative diseases, and also in the treatment of mood disorders, convulsive attacks, attention deficit hyperactivity syndrome, obesity and pain.

36- Use of the pharmaceutical composition according to claim 32, containing at least one active ingredient according to any one of claims 1 to 30, for the manufacture of medicaments for use in the treatment of cognitive deficiencies associated with Alzheimer's disease, Parkinson's disease, Pick's disease, Korsakoff's disease, and frontal lobe and sub-cortical dementias of vascular or other origins.